

# CITY OF EVANSVILLE



## ARBORICULTURAL SPECIFICATIONS MANUAL

Developed by  
Evansville Tree Advisory Board  
and  
City of Evansville  
Department of Urban Forestry



In accordance with the City Ordinance  
"Ordinance of the City of Evansville, Indiana Concerning Trees"  
2.90.010 through 2.90.150  
Effective May 1, 2001

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## 0.0 Definitions

**ANSI** – American National Standards Institute. The following are ANSI standards for tree planting, care, and removal.

- ANSI Z60.1 - 2004 – American Standard for Nursery Stock
- ANSI Z133.1 - 2006 – Pruning, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements
- ANSI A300(Part 1) - 2008 – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning)
- ANSI A300 (Part 2) - 2004 – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Fertilization)
- ANSI A300 (Part 3) - 2006 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Support Systems a. Cabling, Bracing, and Guying)
- ANSI A300 (Part 3) - 2005 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Transplant Standards)
- ANSI A300 (Part 3) - 2005 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Construction Management)
- ANSI A300 (Part 3) - 2008 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Lightning Protection)

**Caliper** - the diameter measurement of a tree trunk taken six inches above the ground on trees with a diameter of four inches (4") or smaller and twelve inches (12") above the ground on larger planting stock.

**Established tree** – A tree that has been planted in its current location for longer than a duration of 2 years.

**Public tree** - A tree located on a street, walkway, sidewalk, park or other property owned by the City of Evansville ("City") or other governmental agency; provided, however, such definition shall exclude both: a tree located on a street, walkway or sidewalk as described in subdivision plat, where such street, walkway or sidewalk has not been yet dedicated, constructed and accepted for repair and maintenance by the City, State of Indiana, or other governmental agency; and a tree located on property owned by the City, State of Indiana or other governmental agency strictly as a utility right-of-way easement.

**Shall** - Is always mandatory and not merely suggestive.

**Should** - Denotes an advisory recommendation.

**Tree** - A perennial plant having a woody supporting main stem or trunk, ordinarily growing to definite heights and usually developing branches at some distance from the ground.

**Tree care** - the treating, spraying, removal, pruning and any other tree maintenance or cultural work intended for the enhancement or preservation of trees and the removal and prevention of any and all damage to any street trees caused by tree pests, blights, and diseases.

**Tree Advisory Board** – The Evansville Tree Advisory Board.

**Top** - cutting a currently growing or one-year-old stock back to a bud, or cutting an older branch or stump to a stub or lateral branch not sufficiently large enough to assume the terminal role. Other terms that may be used to mean the same as topping are; tipping, heading, cutting back, rounding over, and pollarding.

**1.0 Authority.** Pursuant to authority granted under “Ordinance of the City of Evansville, Indiana Concerning Trees” Creating a Tree Advisory Board, and approved by the Common Council of the City of Evansville, Indiana, on the 1<sup>st</sup> day of May, 2001, having had the advice and assistance of the Tree Advisory Board, established in said Ordinance, hereby promulgates the following as the Arboricultural Specifications and Standards of Practice for the City of Evansville, Indiana, hereinafter called the Arboricultural Specifications Manual.

## **2.0 Policy**

**2.1** All work on public trees shall comply with the “Ordinance of the City of Evansville, Indiana Concerning Trees” of the City of Evansville, Indiana, and this Arboricultural Specifications Manual.

**2.2** The Arboricultural Specifications Manual shall be adhered to at all times, but it may be amended at any time that experience, new research, or laws indicate that improved methods or circumstances make it advisable, and only then with the advice and assistance of the Tree Advisory Board, all as provided for in the above said Ordinance.

**2.3** The Arboricultural Specifications Manual, the standard for work performed on or with trees on a daily basis, shall be updated by the Tree Advisory Board as needed. The Tree Advisory Board shall have the authority to modify, amend, or extend the Arboricultural Specifications Manual at any time that experience indicates improved methods or whenever circumstances make it advisable.

**2.4** The policy of the Tree Advisory Board shall be to cooperate at all times with the public, property owners, other municipal departments, public utilities and with appropriate not-for-profit organizations.

**2.5** The Evansville City Arborist, in consultation with the Tree Advisory Board, shall have the jurisdiction, authority, control, supervision, and direction over all trees

planted or growing in or upon public property, and the planting, removal, care, maintenance, and protection thereof.

### **3.0 General Specifications**

- 3.1** The Arboricultural Specifications contained in this document are to serve as a standard for all work performed on or with all public trees and development projects that include tree plantings as required by the Evansville Area Planning Commission. These standards will apply whether the work is performed “in-house”, contractually by private businesses, or by private individuals.
- 3.2** All terms used in this manual, which are defined in the “Ordinance of the City of Evansville, Indiana Concerning Trees”, shall hold the same definition in this manual.
- 3.3** A permit shall be obtained from the Tree Advisory Board, through the City Arborist’s office, before any person, either for himself or another, prunes, removes, or destroys any public tree.
- 3.4** All requests for bid specifications for landscaping should be reviewed by the City Arborist and/or other qualified members of the Tree Advisory Board before they are sent out to potential bidders. This will allow trained arborists and horticulturists a chance to see whether items in the bid need to be altered for long-term plant survival.
- 3.5** A site meeting shall be conducted between the contractor, the City Arborist, and a representative from the public department responsible for the project before any landscape work is to be performed. During such meeting the City Arborist shall inform the contractor how all work shall be performed including, but not limited to, proper planting techniques, proper irrigation techniques, proper mulching techniques, and proper maintenance techniques. The City Arborist shall also make clear to the contractor their responsibilities outlined in the contract for the landscaping, and the contractor’s guarantee/warranty period for all vegetation planted and/or maintained by them.
- 3.6** Oversight for contract administration of landscaping shall be performed by city arborist. The City Arborist shall monitor, and regulate work done by the landscape contractor(s) throughout the contract period. All non-compliance issues of the contract by the contractor shall be reported to the public department responsible for the project, and to the Tree Advisory Board. Follow up work and routine maintenance work needed after the contract has been fulfilled shall be determined by the City Arborist, and reported to the appropriate department.
- 3.7** It shall be unlawful for any person to engage in the business of cutting, trimming, pruning, or removing any tree within the City of Evansville, for hire, without first procuring a license as required by the “Ordinance of the City of Evansville, Indiana Concerning Trees” codes 2.90.010 through 2.90.150.

- 3.8** Authorized work on or with public trees neither expresses nor implies a right to violate any local, state, or federal law while in the process of performing such work.
- 3.9** All such work shall be conducted in a manner as to cause the least possible interference with, or annoyance, to others.
- 3.10** All personnel utilized for work on or with trees shall be trained to perform the work properly and safely in accordance with these Arboricultural Specifications, and ANSI standards.
- 3.11** Only a licensed tree pruner shall perform work on trees, except during emergencies. An emergency shall be an instance when a public tree(s) has been severely damaged by storms or other causes or is obstructing utility wires, etc.

The Board of Public Works or public utilities may without permit resort to topping or severe cutting back of limbs of public trees, but should report all such actions to the Tree Advisory Board.

- 3.12** A licensed tree pruner is recommended, but shall not be required, for trees being pruned or removed as part of a new development on public property, so long as the project has been approved by Area Planning Commission. Tree preservation and any tree pruning work that is required, shall be done in accordance with the standards set forth in this manual.
- 3.13** Any use of tools and equipment for pruning, trimming, repairing, maintaining and removing trees shall be in accordance with ANSI standards.
- 3.14** Approved street and sidewalk warning devices shall be in position as required at all times while work on public trees is being performed. Adequate barricades and other warning devices shall be placed and flagmen shall be stationed as necessary for the safety of pedestrians and vehicles. All closures of public rights-of-way shall be approved by the Evansville Safety Board.
- 3.15** Whenever overhead utility lines, gas lines, water lines, sewer lines, or other improvements upon a public area are jeopardized by any authorized tree pruning or removal activities, the proper authorities of the utilities involved shall be consulted prior to performing any work activity and all requested precautions by any such authority shall be followed. Those performing work shall be responsible for having utilities located prior to planting, stump grinding, or any other type of digging.
- 3.16** Companies that violate or ignore bid agreements during the installation or maintenance of landscape plantings, or refuse to honor warranties, shall be

deemed a non-responsible bidder, and shall be denied an award on a bid for landscaping for a period of no less than three years from the date of the violation.

**3.17** All contracted landscape plantings shall have a minimum of two, or preferred three year warranty. Bids should be worded such that landscape maintenance for a minimum of two years, or for a preferred three year period, be performed by the landscape installation company. Whoever plants landscaping on site shall be responsible for their health. This will promote more conscientious planting practices, and avoid the need to determine blame for tree failure.

**3.18** All companies bidding on planting/maintenance must develop a complete post-planting maintenance program. This will include, but not be limited to: irrigation, fertilization, pruning/training, and pest control. Pest control refers to controlling insects, diseases, weeds, and other harmful agents.

#### **4.0 Planting**

**4.1 Acceptable Tree Species.** The Appendices contain lists of tree species or their varieties and cultivars acceptable and approved for planting on public property. No species other than those included in this list may be planted on public property without written permission of the Tree Advisory Board.

**4.2 Size.** Unless otherwise specified by the Tree Advisory Board, all species and their cultivars or varieties shall conform to ANSI standards.

- Medium and Large trees (listed in Tables II and III) – 2½” caliper;
- Small trees (listed in Table I) – 1½” caliper;
- Medium and large evergreen trees and multi-stem trees – 12’ height
- Small evergreen trees and multi-trunk trees – 10’ height
- Shrubs – 5-gallon containers or equivalent balled and burlapped.

**4.3 Grade.** Unless otherwise allowed for specific reasons, all trees shall have comparatively straight trunks (except for those that are multi-trunk), well developed leaders and tops, and the roots shall not only be characteristic of the species, cultivar or variety, but also shall exhibit evidence of proper nursery pruning practices. They shall have acceptable balance between top and root. At the time of planting, all trees must be free of mechanical injuries, and other objectionable features that tend to affect the future form and health of the plant.

#### **4.4 Location and Spacing.**

##### **4.4.1 Pavement and tree spacing for street trees and trees in public areas.**

The distance that trees may be planted from curbs, curb lines and sidewalks may be no closer than the following: Small trees, two (2) feet; Medium and Large trees, three (3) feet.

**4.4.2 Pavement and tree spacing for trees in parking lots.** The distance that trees may be planted from curbs, curb lines and sidewalks may be no closer than the following: Small trees, three (3) feet; Medium trees, four (4) feet; and Large trees, five (5) feet.

**4.4.3 Driveways, Alleys and Intersections.** Trees shall be planted at least fifteen (15) feet from driveways and alleys. No street trees shall be planted at an intersection corner within 25 feet of the curved intersection.

**4.4.4 Utilities.** No tree, other than those listed as small trees in the appendices of this manual, may be planted within twenty (25) feet of any overhead utility wire. Minimal planting distances from overhead utility wires should be based upon mature tree height and spread. Species shall be selected for planting under utility wires so that the maximum height of the trees at maturity will not be the same or more as the height of the lowest electrical transmission wire. Trees that have canopy heights exceeding the height of transmission wires shall be spaced from utility poles at least a minimum of one-half (1/2) of their total mature canopy spread plus ten (10) feet.

**4.4.5 Other Utilities.** Shade trees shall not be planted closer than fifteen (15) feet from all lampposts and should allow for proper lighting. Trees planted near light posts shall be monitored, and pruned as needed, to prevent obstruction of light.

**4.4.6 Spacing Between Trees.** As a general recommendation, trees and shrubs should be spaced so that they are separated by a minimum of one-third (1/3) of their total mature canopy spread.

**4.4.7 Miscellaneous.** All planting on unpaved streets without curbs or sidewalks must have the approval of the Tree Advisory Board, who shall determine the location of the tree, so that it will not be injured or destroyed when the street is curbed and paved, or when sidewalks are constructed. No street tree shall be planted within ten (10) feet of any fire hydrant or stop sign. Where overhead lines or building setback presents a special problem, the selection of planting site and species shall be determined by the Tree Advisory Board.

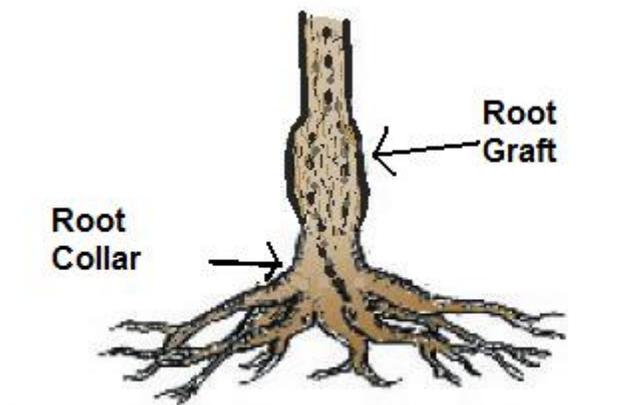
**4.5 Tree Transport and Storage.** Trees shall be transported fully covered by tarp(s) to prevent them from drying out and getting wind burn. During transport and storage roots and root balls shall be routinely inspected and watered as necessary to prevent from drying out. If proper moisture content of roots and root balls cannot be maintained on site, they shall be healed in properly until they are planted.

**4.6 Tree Inspection.** Trees shall be inspected for proper root to shoot ratio before being accepted according to ANSI Z60.1-2004, and shall be replaced with acceptable root stock when rejected. Trees shall also be rejected if they have

defects or have poor structure for that species. Balled and burlapped trees shall have burlap removed from top of root ball to inspect root collar depth to determine if the tree is acceptable.

#### 4.7 Tree Planting Method.

**4.7.1 Planting Depth and Width.** The hole for tree planting shall be dug to the depth of the measurement of the tree being planted from the root flare to the bottom of the root ball. Care shall be taken to not confuse the tree graft, if one is present, with the root flare (see figure 1). The root flare of trees that are containerized or balled and burlapped shall be exposed to determine this measurement before digging. Pits for the planting of trees shall be at least three times wider than the diameter of the roots or root ball. The edges of planting pits shall be scarified to prevent glazing of soil after digging.



**Figure 1.** Root Graft Vs. Root Collar (Flare)

**4.7.2 Removal of Foreign Objects.** Brick, rock, foreign roots, and other debris that is not considered soil shall be removed from planting pits. Burlap, ropes, and wires shall be either entirely removed from balled and burlapped trees, or cut back at least 1/3<sup>rd</sup> down the sides of the root ball before backfill is used. Soil may also be completely removed from balled and burlapped trees so long as roots are not damaged. Containers shall be completely removed from trees before planting containerized trees, and containerized tree roots shall be pruned and spread apart as necessary to improve future root growth and prevent root girdling. Roots of the trees shall be kept damp during these processes to prevent drying out.

**4.7.3 Tree Placement.** The tree shall be centered in the planting hole with the tree completely upright and with the root collar between zero to one inches above ground level, and absolutely no lower than ground level. If the root collar is not at ground level, soil shall be added or removed from the bottom of the pit until the

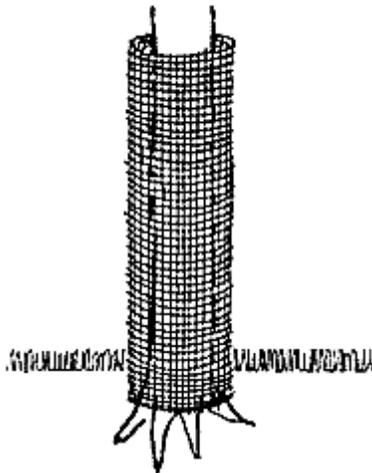
proper height is achieved. If soil is placed into pit to adjust root collar depth it shall be tamped down before backfilling.

**4.7.4 Amendments.** Only the original soil removed shall be used as backfill, and no soil amendments shall be used, unless the entire site is being amended with the same amendment material and at the same percentage of amendment uniformly.

**4.7.5 Backfilling and Watering.** As soil is placed into hole, clumps of soil shall be broken up to a maximum size of ½ inch size clumps. Water shall be used during backfilling intermittently to improve soil settling. When the planting is completed, the entire root area shall be thoroughly saturated with water. Care shall be taken to prevent the tree from becoming off center during this process.

**4.7.6 Staking.** Tree trunks shall be guyed, or supported in an upright position, according to accepted arboricultural practices. The guys or supports shall be installed so that they will neither girdle or cause serious injury to the tree nor endanger public safety. Tree stakes, guy wires, and supports for trees shall be removed the spring following the first full growing season.

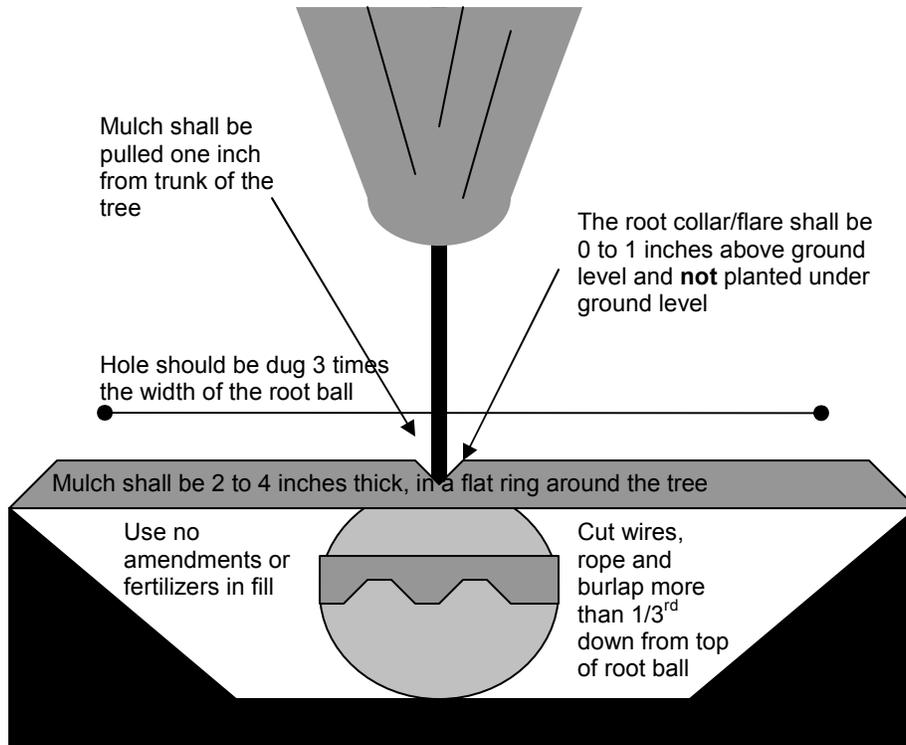
**4.7.7 Trunk Protection.** Tree trunk protectors, if used, shall consist of wire mesh screen, which shall be placed around trunk loosely in a way that it can be slid up and down the trunk, unimpeded, and shall not be tied to the trunk, but shall be attached to itself in the manner of a loose tube around the tree (see figure 2). Trunk protection shall be removed the spring after the first full growing season.



**Figure 2: Trunk Protection.**

**4.7.8 Tree Grates and Mulch.** Organic mulch shall be immediately placed around trees after planting for a minimum distance of three feet, or to the edge of pavement, whichever comes first. The mulch layer shall be applied at a minimum height of two inches, to a maximum height of four inches. Excessive mulch will not be piled against the tree trunk (mulch volcano), and all mulch shall be pulled away from the trunk one inch (1”). Acceptable mulch materials include wood

chips, shredded bark, bark nuggets, and similar products. No other mulch material may be substituted without authorization from the Tree Advisory Board. Grates shall not be used around trees.



**Figure 3: Proper tree planting.**

## 5.0 Newly Planted Tree Care.

**5.1 General.** Newly planted trees (trees planted within 3 years), shrubs and other plants shall require special maintenance for two or three growing seasons following planting. All maintenance practices shall follow approved arboricultural standards.

**5.2 Watering.** Trees shall be watered when one inch of rain water has not fallen within 7 days, or within 7 days of last watering. Proper watering of trees shall consist of the equivalent of one inch of rain (1/2 gallon per square foot of soil) for the root zone per tree per week. Gator Bags can be used, but must be completely filled once per week for proper watering. Programmable or manual irrigation systems may also be used, but shall be programmed or run only once per week after lawn is established. To prevent overwatering of trees, irrigation that is required to run more than once per week for other vegetation shall be set separately from the irrigation that is installed for watering trees.

**5.3 Fertilization.** Fertilization of trees should not be needed for trees unless a nutrient deficiency has been observed and shall only occur after approved by the Tree

Advisory Board. Fertilization of public trees shall follow ANSI standards or other accepted arboricultural standards. Fertilization, if deemed necessary, shall be done according to soil nutrient deficiencies, and current lawn and landscaping fertilization shall be calculated, before fertilization mixes and a rates are calculated. Only broadcast fertilization of wet or dry fertilizers over root system of tree shall be accepted unless otherwise approved by the Tree Advisory Board.

**5.4 Insect and Disease Control.** Tree species that are resistant to insects and diseases should be selected for plantings. Frequent and thorough inspections shall be made to determine when measures for the control of insects and diseases shall be taken. Before chemicals are used to resolve pest and disease issues, the specific tree species and pest shall be properly identified to ensure proper control method and alternative controls should be considered in the place of chemicals. If fungicides, herbicides or pesticides are required to be applied for controlling disease, pests or weeds, they must be applied by an Indiana Licensed Pesticide Applicator, or by an employee working under direct supervision of a licensed applicator who is within direct contact of the employer, as per the regulations set forth by the Office of the Indiana State Chemist.

**5.5 Pruning.** Pruning newly planted trees shall consist of removing dead, broken, or injured branches, water sprouts, and the suppression of uneven growth that affects form. Pruning shall be practiced as often thereafter as needed to assure strong branch unions. Newly planted trees need not have lower branches removed until they are well established, or unless the branches visually or physically obstruct paved right-of-ways and signs. Pruning of public trees shall follow ANSI standards or other accepted arboricultural standards.

## **6.0 Established Tree Care.**

**6.1 Pruning and Removal.** No topping of trees shall be permitted. All large, established trees shall be pruned to a height of at least eight (8) feet above sidewalks and twelve (12) feet above streets. All cuts shall be made with a saw or pruner and only at the nodes or crotches. No stubs shall be left. No spurs or climbing irons shall be used to climb trees, except when trees are to be removed or during an emergency rescue. All dead branches shall be removed; branches that cross or rub should be pruned to eliminate future problems. The stumps of all removed trees shall be cut to at least six (6) inches below the ground level where feasible. Stump grindings shall be hauled off, and the soil cavity shall be filled with top soil, tamped, leveled and re-seeded. Pruning of public trees shall follow ANSI standards or other accepted arboricultural standards.

**6.2 Insect and Disease Control.** Before chemicals are used to resolve pest and disease issues, the specific tree species and pest shall be properly identified to ensure proper control method and alternative controls should be considered in the place of chemicals. If fungicides, herbicides or pesticides are required to be applied for controlling disease, pests or weeds, they must be applied by an

Indiana Licensed Pesticide Applicator, or by an employee working under direct supervision of a licensed applicator who is within direct contact of the employer, as per the regulations set forth by the Office of the Indiana State Chemist.

**6.3 Fertilization.** Fertilization of trees should not be needed unless a nutrient deficiency has been observed and shall only occur after approved by the Tree Advisory Board. Fertilization of public trees shall follow ANSI standards or other accepted arboricultural standards. Fertilization, if deemed necessary, shall be done according to soil nutrient deficiencies, and current lawn and landscaping fertilization shall be calculated, before fertilization mixes and a rates are calculated. Only broadcast fertilization of wet or dry fertilizers over root system of tree shall be accepted unless otherwise approved by the Tree Advisory Board.

**6.4 Cabling and Bracing.** As a general rule, cables should be located above the crotch at a point approximately two-thirds (2/3) of the distance between the crotch and tops of the branch ends. Rust-resistant cables, thimbles, and lags should be used. The ends of a cable should be attached to hooks or eyes of lags or bolts inserted near the ends of the branches; thimbles must be used in the eye splice in each end of the cable. In no instance shall cable be wrapped around a branch. All cabling and bracing practices shall follow ANSI standards or other accepted arboricultural standards. Cabling and bracing shall only be performed by a Certified Arborist.

## **7.0 Tree Protection.**

**7.1 Protection or Removal.** In the circumstances where construction and utility operations underground will affect the health of a tree, a determination will be made considering the overall value of the tree. The criteria for determining a value for a tree will be based on species, size, condition, location, cost of preserving the tree, and urgency of work to be completed. A decision based on this value will be made concerning the protection or removal of the tree in question. This decision shall be made jointly by the Tree Advisory Board and the City Engineer or appropriate city official.

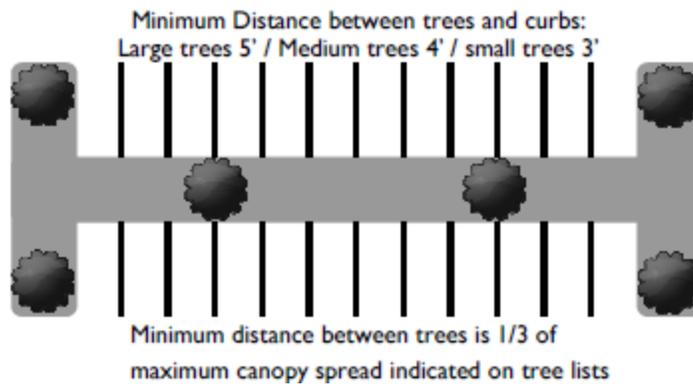
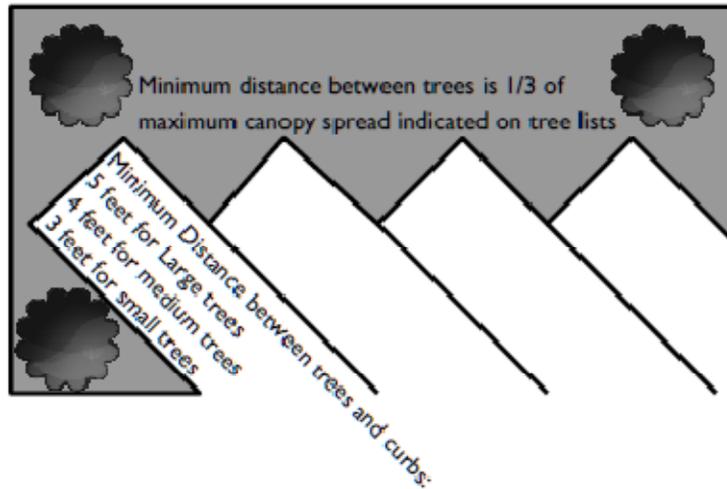
**7.2 Construction Zone.** Existing trees in or near areas to be developed (construction sites) shall be guarded with temporary fencing. Placement of the fence is to be at a minimum distance of one and a half feet (1.5') for each inch in trunk diameter measured at breast height (4½ feet). All vehicles, construction equipment, building materials, dirt, or other debris shall be kept outside of the barrier.

**7.3 Root Pruning.** When large roots are to be cut during trenching or grading, pruning of roots must be done with the proper pruning equipment. Clean, flush, smooth cuts shall be made on tree roots.

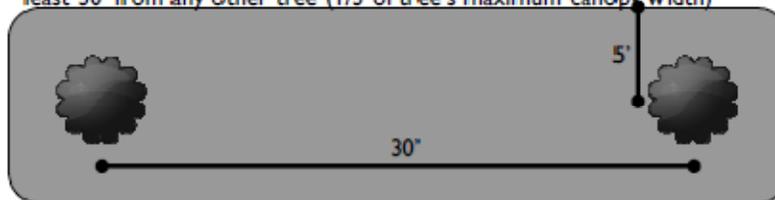
**7.4 Underground Utilities.** All installations of underground utilities upon public property, which may conflict with tree roots, are subject to the review and the approval of the Tree Advisory Board before the project starts. All installations through tree drip-line areas should follow approved tunneling methods.

# Appendix A

## Tree Spacing from Pavement, Curbs and Other Trees in Commercial Landscape Parking Lot Islands



Example: If a tree is selected from the large tree list that has a maximum canopy spread of 90' then a minimum of 5' would be allowed between the tree and the nearest curb, and the tree would need to be spaced at least 30' from any other tree (1/3 of tree's maximum canopy width)



# Appendix B

## Acceptable Trees for Commercial Landscape Parking Lot islands

### Small trees for limited spaces

Species	CommonName	Height	Width	Flowers	Comments
<i>Acer buergeranum</i>	Trident Maple	30	30		
<i>Amelanchier species*</i>	Serviceberry*	25	15	white	
<i>Cercis Canadensis*</i>	Redbud*	30	35	pink or white	
<i>Chionanthus species±*</i>	Fringe Tree±*	15	15	white	
<i>Cornus florida*</i>	Flowering Dogwood*	30	30	white	Requires partial Shade
<i>Cornus kousa</i>	Kousa Dogwood	30	30	white	
<i>Cotinus coggygria±</i>	Smoketree±	15	15	pink	
<i>Crataegus spp.*</i>	Hawthorn*	35	35	white	Disease resistant Variety only
<i>Heptacodium miconioides±</i>	Seven-Son Flower Tree±	15	15	white	Requires partial Shade
<i>Ilex decidua±*</i>	Possom Haw±*	15	15	white	
<i>Juniperus species*†</i>	Juniper species*†	25	10		evergreen
<i>Magnolia x soulangiana</i>	Saucer Magnolia	30	30	pink	
<i>Malus spp.*</i>	Crabapple*	35	25	variety	Disease resistant Variety only
<i>Salix matsudana</i>	Corkscrew Willow	35	20		
<i>Styrax japonicus</i>	Japanese Snowbell	30	25	white	
<i>Thuja occidentalis*†</i>	Arborvitae*†	30	10		evergreen

± Trees selected for areas under power lines that are 20 feet from the ground.

† Evergreen trees – Do not plant where motorists' line of sight will become impaired

\*Native trees

### Medium trees - for large air space but limited root space – No Dwarf Cultivars

Species	CommonName	Height	Width	Flower
<i>Acer campestre</i>	Hedge Maple	40	40	
<i>Betula nigra*</i>	River Birch*	50	35	
<i>Carpinus betulus</i>	European Hornbeam	40	30	
<i>Celtis species*</i>	Sugarberry*	50	40	
<i>Cladrastis kentukea*</i>	Yellowwood*	50	55	white
<i>Ilex spp.†</i>	Holly†	50	25	
<i>Magnolia virginiana</i>	Sweetbay Magnolia	50	25	white
<i>Prunus x yedoensis</i>	Yoshino Cherry	45	45	pink

† Evergreen trees – Do not plant where motorists' line of sight will become impaired

\*Native trees

**Large trees - for open lawn areas and wide boulevards – No Dwarf Cultivars**

Species	CommonName	Height	Width	Flower	Comments
<i>Acer nigrum</i> *	Black Maple*	60	30		
<i>Acer rubrum</i> *	Red Maple*	75	70		
<i>Acer saccharum</i> *	Sugar Maple*	80	70		
<i>Acer x freemanii</i>	Freeman Maple	60	50		
<i>Alnus species</i> *	Alder*	80	40		
<i>Catalpa speciosa</i> *	Catalpa*	60	50	white	
<i>Chamaecyparis species</i> †	False cypress†	75	20		evergreen
<i>Eucommia ulmoides</i>	Hardy Rubber Tree	60	60		
<i>Fagus grandifolia</i> *	Beech*	75	80		Requires partial Shade
<i>Gleditsia triacanthose</i> *	Honey Locust*	80	70		Thornless variety only
<i>Gymnocladus dioica</i> *	Kentucky Coffeetree*	75	65		Male trees only
<i>Liquidambar styraciflua</i> *	Sweetgum*	75	65		'Happy Daze' or 'Rotundiloba'
<i>Liriodendron tulipifera</i> *	Tulip Poplar*	90	50	yellow	
<i>Magnolia acuminata</i> *	Cucumbertree*	70	55	yellow	
<i>Nyssa sylvatica</i> *	Black Tupelo*	70	45		
<i>Oxydendron arboretum</i> *	Sourwood*	60	35	white	
<i>Pinus strobus</i> *†	White Pine*†	80	35		evergreen
<i>Pinus taeda</i> †	Loblolly Pine†	80	30		evergreen
<i>Platanus occidentalis</i> *	Sycamore*	90	70		
<i>Platanus x acerfolium</i>	London Planetree	80	65		
<i>Quercus acutissima</i>	Sawtooth Oak	50	55		
<i>Quercus alba</i> *	White Oak*	100	80		
<i>Quercus bicolor</i> *	Swamp White Oak*	80	80		
<i>Quercus coccinea</i> *	Scarlet Oak*	75	60		
<i>Quercus falcata</i> *	Southern Red Oak*	80	70		
<i>Quercus lyrata</i> *	Overcup Oak*	50	50		
<i>Quercus michauxii</i> *	SwampChestnut Oak*	70	50		
<i>Quercus muehlenbergii</i>	Chinkapin Oak	50	60		
<i>Quercus phellos</i>	Willow Oak	75	60		
<i>Quercus robar</i>	English Oak	80	70		
<i>Quercus rubra</i> *	Northern Red Oak*	80	65		
<i>Quercus shumardii</i> *	Shumard Oak*	80	65		
<i>Sassafras albidum</i> *	Sassafras*	60	40	yellow	
<i>Taxodium distichum</i> *	Bald Cypress*	80	45		
<i>Tilia americana</i> *	American Linden*	70	50	yellow	
<i>Tilia cordata</i>	Little Leaf Linden	80	55	yellow	
<i>Tilia tomentosa</i>	Silver Linden	70	55	white	
<i>Ulmus species</i> *	Elm*	70	40		Disease resistant Variety only
<i>Zelkova serrata</i>	Zelkova	70	60		

† Evergreen trees – Do not plant where motorists' line of sight will become impaired

\*Native trees

# Appendix C

## Acceptable Trees for Public plantings Other Than Commercial Landscape Parking Lot islands

### Trees for under powerlines ≤20'

Species	CommonName	Height	Width	Flowers	Comments
<i>Acer ginnala</i>	Amur Maple	20	20		
<i>Acer japonicum</i>	Fullmoon Maple	15	10		
<i>Aesculus pavia</i>	Red Buckeye	20	25	red	large nuts
<i>Chionanthus Species*</i>	Fringe Tree*	15	15	white	
<i>Cornus racemosa</i>	Gray Dogwood	15	12	white	spreading/weeping
<i>Cotinus coggygria</i>	Smoketree	15	15	pink	
<i>Hamamelis mollis</i>	Witch Hazel	20	18	yellow	
<i>Heptacodium miconioides</i>	Seven-Son Flower Tree	15	15	white	
<i>Ilex decidua*</i>	Possom Haw*	15	15	white	
<i>Magnolia stellata</i>	Star Magnolia	20	15	white	
<i>Prunus triloba</i>	Flowering Almond	15	15	pink	
<i>Rhamnus caroliniana</i>	Carolina Buckthorn	15	15		thorns

\*Native trees

### Trees for under powerlines 20'-30'

Species	CommonName	Height	Width	Flowers	Comments
<i>Acer buergeranum</i>	Trident Maple	30	30		
<i>Acer palmatum</i>	Japanese Maple	25	25		
<i>Acer tartaricum</i>	Tartarian Maple	25	25		
<i>Amelanchier species*</i>	Serviceberry*	25	15	white	
<i>Cercis canadensis*</i>	Redbud*	30	35	pink or white	
<i>Cornus florida*</i>	Flowering Dogwood*	30	30	white	partial shade only
<i>Cornus kousa</i>	Kousa Dogwood	30	30	white	
<i>Crataegus spp.*</i>	Hawthorn*	35	35	variety	dwarf cultivars only
<i>Magnolia x soulangiana</i>	Saucer Magnolia	30	30	pink	
<i>Malus spp.*</i>	Crabapple*	35	25	variety	dwarf cultivars only
<i>Salix matsudana</i>	Corkscrew Willow	35	20		
<i>Syringa reticulata</i>	Lilac Tree	30	20	white	

\*Native trees

## Medium size trees – No Dwarf Cultivars

Species	CommonName	Height	Width	Flower	Comments
<i>Acer buergeranum</i>	Trident Maple	30	30		
<i>Acer capestre</i>	Hedge Maple	40	40		
<i>Acer Grandidentatum</i>	Bigtooth Maple	35	20		
<i>Acer griseum</i>	Paperbark Maple	35	30		temperamental/delicate
<i>Acer palmatum</i>	Japanese Maple	25	25		
<i>Acer tartaricum</i>	Tartarian Maple	25	25		
<i>Amelanchier species*</i>	Serviceberry*	30	20	white	
<i>Betula nigra*</i>	River Birch*	50	35		
<i>Carpinus betulus</i>	European Hornbeam	40	30		
<i>Carpinus caroliniana*</i>	American Hornbeam*	35	35		temperamental/delicate
<i>Castanea spp.</i>	Chinese Chestnut	40	50	yellow	spiny fruit pods
<i>Celtis species*</i>	Hackberry*	50	40		
<i>Cercis canadensis*</i>	Redbud*	30	35	Pink/white	
<i>Cladrastis kentukea*</i>	Yellowwood*	50	55	white	
<i>Cornus florida*</i>	Flowering Dogwood*	30	30	white	needs partial shade
<i>Cornus kousa</i>	Kousa Dogwood	30	30	white	
<i>Corylus corlurna</i>	Turkish Filbert	50	35		
<i>Crataegus spp.*</i>	Hawthorn*	35	35	white	Disease resistant var. only
<i>Evodia danielii</i>	Bebe Tree	30	30	white	
<i>Franklinia alatamaha</i>	Franklin Tree	25	15	white	temperamental/delicate
<i>Halesia carolina</i>	Carolina Silverbell	40	30	white	
<i>Ilex spp.</i>	Holly	50	25		evergreen
<i>Juniperus species*</i>	Juniper species*	25	10		evergreen
<i>Koelreataria paniculata</i>	Golden Raintree	40	40	yellow	
<i>Magnolia macrophylla</i>	Bigleaf Magnolia	40	25	white	
<i>Magnolia virginiana</i>	Sweetbay Magnolia	50	25	white	
<i>Magnolia x soulangiana</i>	Saucer Magnolia	30	30	pink	
<i>Malus spp.</i>	Crabapple*	35	25	variety	Disease resistant var. only
<i>Ostrya virginiana*</i>	Amer. Hophornbeam*	40	30		temperamental/delicate
<i>Parrotia persica</i>	Persian Parrotia	40	40	red	
<i>Phellodendron amurense</i>	Amur Corktree	45	40		
<i>Picea pungens</i>	Blue Spruce	50	20		evergreen
<i>Pinus echinata*</i>	Shortleaf Pine*	50	35		evergreen
<i>Pinus sylvestris</i>	Scotch Pine	50	30		evergreen
<i>Pinus virginiana*</i>	Virginian Pine*	40	35		evergreen
<i>Prunus cerasifera</i>	Cherry Plum	25	25	white	
<i>Prunus maackii</i>	Amur Chokecherry	40	35	white	
<i>Prunus sargentii</i>	Sargent Cherry	40	18	pink	
<i>Prunus serrulata</i>	Oriental Cherry	35	25	pink	
<i>Prunus subhirtella</i>	Higan Cerry	35	35	pink	
<i>Prunus virginiana</i>	Choke Cherry	30	20	white	
<i>Prunus x yedoensis</i>	Yoshino Cherry	45	45	pink	
<i>Pterostyrax hispida</i>	Epaulette Tree	30	30	white	
<i>Stewartia species</i>	Stewartia species	25	25	white	temperamental/delicate
<i>Styrax japonicus</i>	Japanese Snowbell	30	25	white	
<i>Syringa reticulata</i>	Lilac Tree	30	20	white	
<i>Thuja occidentalis*</i>	Arborvitae*	30	10		evergreen
<i>Xanthoceras sorbifolium</i>	Yellowhorn	40	40	white	difficult to find

\*Native trees

## Large size trees – No Dwarf Cultivars

Species	CommonName	Height	Width	Flower	Comment
<i>Acer nigrum</i> *	Black Maple*	60	30		
<i>Acer platanoides</i>	Norway Maple	75	60		temperamental/delicate
<i>Acer pseudoplatanus</i>	Sycamore Maple	70	60		
<i>Acer rubrum</i> *	Red Maple*	75	70		
<i>Acer saccharum</i> *	Sugar Maple*	80	70		
<i>Acer x freemanii</i>	Freeman Maple	60	50		
<i>Aesculus flava</i> *	Yellow Buckeye*	75	35	yellow	large nuts
<i>Aesculus glabra</i> *	Ohio Buckeye*	70	50	yellow	large nuts
<i>Aesculus hippocastanum</i>	Horsechestnut	70	55	Yellow	large nuts
<i>Alnus glutinosa</i>	Black Alder	80	40		
<i>Calocedrus decurrens</i>	Incense Cedar	60	12		evergreen
<i>Carya illinoensis</i> *	Pecan*	100	70		large nuts
<i>Carya spp.</i> *	Hickory*	80	35		large nuts
<i>Catalpa specioca</i> *	Catalpa*	60	50	white	
<i>Cercidiphyllum japonicum</i>	Katsura Tree	60	60		temperamental/delicate
<i>Chamaecyparis lawsoniana</i>	False cypress	75	20		evergreen
<i>Diospyros virginiana</i> *	Persimmon*	60	35		large fruit
<i>Eucommia ulmoides</i>	Hardy Rubber Tree	60	60		
<i>Fagus grandifolia</i> *	Beech*	75	80		prefers partial shade
<i>Ginkgo biloba</i>	Ginkgo	80	80		get male only/fruit is smelly
<i>Gleditsia triacanthose</i> *	Thornless Honey Locust*	80	70		
<i>Gymnocladus dioicus</i> *	Kentucky Coffee Tree*	75	65		large fruit pods
<i>Juglans nigra</i> *	Black Walnut*	80	80		large nuts
<i>Liquidambar styraciflua</i> *	Sweetgum*	75	65		'Hapydaze' or 'Rotundiloba'
<i>Liriodendron tulipifera</i> *	Tulip Poplar*	90	50	yellow	
<i>Magnolia acuminata</i> *	Cucumbertree*	70	55	yellow	
<i>Magnolia grandiflora</i>	Southern Magnolia	80	40	white	evergreen
<i>Metasequoia glyptostroboides</i>	Dawn Redwood	85	40		
<i>Nyssa sylvatica</i> *	Black Tupelo*	70	45		
<i>Oxydendron arboretum</i> *	Sourwood*	60	35	white	
<i>Picea abies</i>	Norway Spruce	100	40		evergreen
<i>Pinus nigra</i>	Austrian Pine	60	35		evergreen
<i>Pinus strobus</i> *	White Pine*	80	35		evergreen
<i>Pinus taeda</i>	Loblolly Pine	80	30		evergreen
<i>Platanus occidentalis</i> *	Sycamore*	90	70		
<i>Platanus x acerfolium</i>	London Planetree	80	65		
<i>Prunus serotina</i> *	Black Cherry*	90	50	white	
<i>Psuedotsuga menziesii</i>	Douglas Fir	60	30		evergreen
<i>Quercus acutissima</i>	Sawtooth Oak	50	55		
<i>Quercus alba</i> *	White Oak*	100	80		large nuts
<i>Quercus bicolor</i> *	Swamp White Oak*	80	80		large nuts
<i>Quercus coccinea</i> *	Scarlet Oak*	75	60		
<i>Quercus falcata</i> *	Southern Red Oak*	80	70		large nuts
<i>Quercus lyrata</i> *	Overcup Oak*	50	50		
<i>Quercus macrocarpa</i> *	Bur Oak*	90	90		large nuts
<i>Quercus michauxii</i> *	Swamp Chestnut Oak*	70	50		large nuts
<i>Quercus muehlenbergii</i>	Chinkapin Oak	50	60		large nuts
<i>Quercus phellos</i>	Willow Oak	75	60		

<b>Species cont.</b>	<b>CommonName</b>	<b>Height</b>	<b>Width</b>	<b>Flower</b>	<b>Comment</b>
<i>Quercus robur</i>	English Oak	80	70		large nuts
<i>Quercus rubra</i> *	Northern Red Oak*	80	65		large nuts
<i>Quercus shumardii</i> *	Shumard Oak*	80	65		large nuts
<i>Salix alba</i>	Weeping Willow	70	70		
<i>Sassafras albidum</i> *	Sassafras*	60	40	yellow	
<i>Sophora japonica</i>	Scholartree	70	70	white	
<i>Taxodium distichum</i> *	Bald Cypress*	80	45		
<i>Tilia americana</i> *	American Linden*	70	50	yellow	
<i>Tilia cordata</i>	Little Leaf Linden	80	55	yellow	
<i>Tilia tomentosa</i>	Silver Linden	70	55	white	
<i>Tsuga canadensis</i> *	Canadian Hemlock*	70	35		evergreen
<i>Ulmus species</i> *	Elm*	70	40		Disease resistant variety only
<i>Zelkova serrata</i>	Zelkova	70	60		

\*Native trees

# Appendix D

## Undesirable Trees for any Public Location or Commercial Landscape Parking Lot Islands

Scientific Name	Common Name	Comments/Reason
<i>Acer negundo</i>	Boxelder	Weak structure & wood
<i>Acer saccharinum</i>	Silver Maple	Weak structure & wood
<i>Ailanthus altissima</i>	Tree of Heaven	Weak wood/non-native/highly invasive
<i>Albizia spp.</i>	Mimosa	Non-native & invasive/dieback problems
<i>Betula platyphylla</i>	White Birch	Does not do well in our climate
<i>Elaeagnus angustifolia</i>	Russian Olive	Non-native/highly invasive
<i>Fraxinus spp.</i>	Ash	Emerald Ash Borer will decimate Ash
<i>Maclura pomifera</i>	Osage Orange	Weak structure and high maintenance
<i>Morus spp.</i>	Mulberry	Weak structure and high maintenance
<i>Populus deltoides</i>	Cottonwood	Undesirable fruit
<i>Populus nigra</i>	Lombardy Poplar	Weak structure & wood
<i>Pyrus calleryana</i>	Bradford Pear	Weak structure & wood
<i>Quercus imbricaria</i>	Shingle Oak	Prone to galls and high Maintenance
<i>Quercus palustris</i>	Pin Oak	Prone to galls and high Maintenance
<i>Robinia pseudoacacia</i>	Black Locust	Prone to disease/invasive/messy
<i>Salix nigra</i>	Black Willow	Weak structure & wood